

## Survey of clinical features, pathogenesis and therapeutic options for *Ebola* haemorrhagic fever

Mehdi Goudarzi<sup>1</sup>, Maryam Fazeli<sup>2</sup>, Mehdi Azad<sup>3</sup>, Sima Sadat Seyedjavadi<sup>\*4</sup>

<sup>1</sup>Department of Microbiology, School of Medicine, Shahid Beheshti University of Medical Science, Tehran, Iran

<sup>2</sup>WHO collaborating center for reference and research on rabies, Pasteur Institute of Iran, Tehran, Iran

<sup>3</sup>Department of Medical laboratory sciences, School of Paramedicine, Qazvin University of Medical Sciences, Qazvin, Iran

<sup>4</sup>Department of medical mycology, Pasteur institute of Iran, Tehran, Iran

\*Corresponding Author: email address: [sima\\_seyedjavadi@yahoo.com](mailto:sima_seyedjavadi@yahoo.com) (S. S. Seyedjavadi)

### ABSTRACT

The genus Ebola virus first was recognized in 1976, when two outbreaks occurred in Zaire and Sudan. Ebola virus disease (EVD) is a highly contagious disease that can affect both human and nonhuman primates: Zaire ebolavirus (ZEBOV), Sudan ebolavirus (SEBOV), Côte d'Ivoire ebolavirus (CEBOV), Bundibugyo ebolavirus (BEBOV) and Reston ebolavirus (REBOV) are five members of the Filoviridae family that can cause haemorrhagic fever. EVD is transmitted by direct contact with contaminated blood or other biological fluids of the infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest. Ebola is responsible for different clinical futures that can be ranged from fever, headache, arthralgia, myalgia, abdominal pain, anorexia and vomiting to severe respiratory disorders, viral hemorrhagic fever, cardio-vascular disorders and hypovolaemic shock. Although there is no specific treatment for EVD, considerable advances like use of monoclonal antibody, intefron and Favipiravir/T-705 as effective chemotherapeutic agent in treatment of EBV have been made. To date, 25 outbreaks of EVD have been reported. Hence, EVD as a zoonotic disease should be more focused not only in endemic area but also in throughout the world. Awareness of the disease and routes of transmission and also continuous surveillance to combat disease and outbreaks is necessary.

**Key words:** Ebola virus; Clinical features; Ebola haemorrhagic fever; Therapeutic options.

### INTRODUCTION

Ebola virus as a causative agent of a severe form of viral haemorrhagic fever has drawn international attention particularly for the largest outbreaks in West African countries. Ebola haemorrhagic fever (EHF) is a zoonosis disease that can affect both human and nonhuman primates and caused by members of the Filoviridae family: Zaire ebolavirus (ZEBOV), Sudan ebolavirus (SEBOV), Côte d'Ivoire ebolavirus (CEBOV), Bundibugyo ebolavirus (BEBOV) and Reston ebolavirus (REBOV) [1]. Ebola virus was first documented in 1976 in Republic of the Congo near the Ebola River [2]; since then, outbreaks have been reported. So far about 25 outbreaks of Ebola have been approximately recognized that all occurring in Africa, with fatality rates of 25% to 90% [3, 4]. Ebola virus disease (EVD) which was known as EHF is a highly contagious anthroozoonotic disease that can cause by direct contact with

contaminated blood or other biological fluids of the infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest [2, 5, 6]. The Ebola virus with a relatively high mortality rate 20-90% (depending on the virus species) and the possibility of misuse as a biological weapon is a serious threat to the worldwide. The natural reservoir host of Ebola virus remains unknown. However, on the basis of evidence and the nature of similar viruses, many researchers believe that this virus is animal-borne and bats are the most likely reservoir [7]. Despite ongoing efforts to recognize the molecular biology and pathogenesis of Ebola virus during the past two decades, there are ambiguities regarding virulence factors, host responses, treatment methods and vaccines of EV. The purpose of this review is to present essential and up-to-date information required to identify, management, prevention and treatment of EVD.